Options Evaluation Assuming CVP/SWP Entrainment is the Most Important Stressor for Delta Smelt

The evaluation of the Options for delta smelt was conducted assuming that CVP/SWP entrainment was a moderately important stressor on delta smelt. Some members of the Steering Committee have expressed a concern that this stressor should be considered a highly important stressor and, if considered as such, the Option rankings for the delta smelt could change. The SAIC team has reevaluated the effects of the Options on delta smelt considering CVP/SWP entrainment as a highly important stressor on delta smelt. As shown below in Tables 1-5, increasing the importance of CVP/SWP entrainment would not affect the Option rankings presented in the Options Evaluation. The effect of changing the importance of this stressor, however, would be to expand the differences in the magnitude of delta smelt benefits provided among the Options. For example, because Option 4 would eliminate CVP/SWP entrainment[1], Option 4 would be expected to provide a much greater benefit to delta smelt relative to the other Options than if the Options are evaluated considering entrainment as a moderately important stressor.

Table 1. Summary of Expected Effects of Option 1 on Highly and Moderately Important Delta Smelt Stressors

		Option Effects on Important Species Stressors Relative to Base Conditions	
Stressors	**Applicable Criteria**	**Scenario A**	**Scenario B**
Highly Important Stressors			
CVP/SWP entrainment[A, 2]	1	No net effect	Moderate benefit
Reduced food availability	1,3,4,5	Very low benefit	Moderate benefit
Reduced rearing habitat	2,3	Very low benefit	Low benefit
Reduced turbidity	1,2,3,5	Very low benefit	Low benefit
Reduced spawning habitat	3	Low benefit	Low benefit
Reduced food quality	1,4,5	Low benefit	Low benefit
Moderately Important Stressors			
Predation	1,5	Low benefit	Low benefit
Exposure to toxics	1,2	No net effect	Very low adverse effect
A. It is recognized that the risk of entrainment at the SWP and CVP export facilities may be a high level stressor to delta smelt in some years and a very low level stressor to delta smelt in other years. For purposes of this analysis, the risk of delta smelt entrainment has been characterized, on average, as a moderate level stressor to the population.			

[1] Under Options 3 and 4 there could be limited exposure of delta smelt for entrainment at the Hood intake facility, however, this would be expected to be minimal relative to the risk for entrainment at the CVP/SWP south Delta facilities.

[2] In the Options Evaluation Report, the CVP/SWP entrainment stressor is ranked as moderately important, after predation in Tables 1-4.

Table 2. Summary of Expected Effects of Option 2 on Highly and Moderately Important Delta Smelt Stressors

Stressors	Applicable Criteria	Option Effects Relative to Important Species Stressors	
		Scenario A	Scenario B
Highly Important Stressors			
CVP/SWP entrainment[A]	1	Low benefit	Moderate benefit
Reduced food availability	1,3,4,5	Low benefit	Moderate benefit
Reduced rearing habitat	2,3	Low benefit	Moderate benefit
Reduced turbidity	1,2,3	Low benefit	Low benefit
Reduced spawning habitat	3	Moderate benefit	Moderate benefit
Reduced food quality	1,4,5	Moderate benefit	Moderate benefit
Moderately Important Stressors			
Predation	1,5	Moderate benefit	Moderate benefit
Exposure to toxics	1,2	Low adverse effect	No effect

A. It is recognized that the risk of entrainment at the SWP and CVP export facilities may be a high level stressor to delta smelt in some years and a very low level stressor to delta smelt in other years. For purposes of this analysis, the risk of delta smelt entrainment has been characterized, on average, as a moderate level stressor to the population.

Table 3. Summary of Expected Effects of Option 3 on Highly and Moderately Important Delta Smelt Stressors

Stressors	Applicable Criteria	Option Effects on Important Species Stressors Relative to Base Conditions	
		Scenario A	Scenario B
Highly Important Stressors			
CVP/SWP entrainment[A]	1	High benefit	High benefit
Reduced food availability	1,3,4,5	Moderate benefit	Moderate benefit
Reduced rearing habitat	2,3	Moderate benefit	Moderate benefit
Reduced turbidity	1,2,3,5	Moderate benefit	Moderate benefit
Reduced spawning habitat	3	Moderate benefit	Moderate benefit
Reduced food quality	1,4,5	Moderate benefit	Moderate benefit
Moderately Important Stressors			
Predation	1,5	Moderate benefit	Moderate benefit
Exposure to toxics	1,2	Moderate adverse effect	Moderate adverse effect

A. Although it is recognized that the risk of entrainment at the SWP and CVP export facilities may, in some years, be a high level stressor to delta smelt, and in some years represents a very low level stressor to delta smelt, for purposes of the analysis the risk of delta smelt entrainment under each of the Options has been characterized, on average, as a moderate level stressor to the population.

Table 4. Summary of Expected Effects of Option 4 on Highly and Moderately Important Delta Smelt Stressors

Stressors	Applicable Criteria	Option Effects on Important Species Stressors Relative to Base Conditions	
		Scenario A	Scenario B
Highly Important Stressors			
CVP/SWP entrainment[A]	1	High benefit	High benefit
Reduced food availability	1,3,4,5	High benefit	High benefit
Reduced rearing habitat	2,3	High benefit	High benefit
Reduced turbidity	1,2,3,5	Moderate benefit	Moderate benefit
Reduced spawning habitat	3	High benefit	High benefit
Reduced food quality	1,4,5	High benefit	High benefit
Moderately Important Stressors			
Predation	1,5	High benefit	High benefit
Exposure to toxics	1,2	Moderate adverse effect	Moderate adverse effect

A. It is recognized that the risk of entrainment at the SWP and CVP export facilities may be a high level stressor to delta smelt in some years and a very low level stressor to delta smelt in other years. For purposes of this analysis, the risk of delta smelt entrainment has been characterized, on average, as a moderate level stressor to the population.

Table 5. Comparison of Options by Covered Fish Species

Species	Performance Rank[1]			
	Option 1	Option 2	Option 3	Option 4
Previous delta smelt ranking	●	●●	●●●	●●●●
Reevaluated delta smelt ranking	●	●●	●●●	●●●●

Notes:

1. Based on information presented in Tables H-1 to H-9 addressing Biological Criteria #1-7.

Species performance ranks are:

●●●● = Best performing,
●●● = Second best performing,
●● = Third best performing,
● = Lowest performing

Where ranks are equal the two Options receive same rank